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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,520	09/26/2001	Makoto Mitani	1155-0226P	9596

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EXAMINER

LEE, RIP A

ART UNIT PAPER NUMBER

1713

DATE MAILED: 05/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/937,520

Applicant(s)

MITANI ET AL.

Examiner

Rip A. Lee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on March 25, 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,26,27,29,30,32,33,35 and 45-56 is/are pending in the application.
- 4a) Of the above claim(s) 35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,26,27,29,30,32,33, and 45-56 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1,26,27,29,30,32,33,35 and 45-56 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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### DETAILED ACTION

This office action follows a response filed on March 25, 2003. Claims 1 26 27 29 30 32 were amended, and new claims 45-56 were added. Claims 2-5, 7-25, 28, 31, 34, and 36-44 were canceled.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claim is drawn to an olefin polymer having a racemic dyad of not less than 0.85. According to the specifications, polymers of propylene or butene possess this morphological feature (page 7, lines 22-24). Therefore, not all polymers of the invention, which are listed as Markush group elements of claim 1 (*i.e.*, polyethylene, HDPE, LLDPE, copolymers of ethylene and C<sub>4-20</sub>  $\alpha$ -olefins, dienes, or cycloolefins), will exhibit the claimed property.

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3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim is drawn to an olefin polymer selected from the group consisting of polyethylene, *inter alia*. The claim also states that one of the properties of the polymer includes a racemic dyad of not less than 0.85. Polyethylene homopolymer, among others, can not exhibit such a feature. As such, the claim is not self-consistent.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1 and 27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 91/12285 to Turner *et al.*

Turner *et al.* teaches olefin block copolymers having  $M_w/M_n$  of 1-5 and  $M_w$  of 100-1,000,000. Said copolymer is represented by the formula,  $(A_1)(A_2)(A_3)...(A_n)$  where each A represents a polymer segment (claim 9). The olefin comprises segments selected from HDPE and isotactic 1-olefins such as syndiotactic polypropylene (claims 9 and 10). The reference is silent with respect to the racemic dyad content and melting point of the polymers. In light of the fact that polymers of the invention possess  $M_w$  of up to 1,000,000, it would be obvious to expect a melting point greater than 70 °C, as claimed. It is further noted that syndiotactic polypropylene, *ipso facto*, has a racemic diad greater than the claimed value of 0.85. Since NMR measurements reflect an average sample environment, a  $^{13}\text{C}$  NMR measurement of a polymer containing a block of syndiotactic polypropylene and a block of HDPE would exhibit a racemic dyad of 0.85. Since the PTO does not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02. Compression molded products are described in the examples.

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9. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 5,449,724 to Moffat *et al.*

Moffat *et al.* teaches a method for making polyethylene polymer having narrow molecular weight distribution of from about 1.00 to 2.5 and having a molecular weight of 5,000 to 1,000,000 or more (col. 5, lines 5-10). Specifically, the process is applied to high molecular weight polyethylene homopolymers or copolymers (col. 5, lines 11-13) where high molecular weight means the polymer has a molecular weight of 200,000 or more (col. 5, lines 20-22). Ethylene copolymers have a comonomer content that does not exceed 50 % (col. 5, line 49). Examples of comonomers are propylene, butene, and hexane, *inter alia* (col. 5, line 34). Moffat *et al.* is silent with respect to the melting point of the polymers. However, in view of the fact that polymers of the invention possess  $M_w$  of up to 1,000,000, it would be obvious to expect a melting point greater than 70 °C, as claimed. Since the PTO does not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.

10. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moffat *et al.* in view of Turner *et al.*

Moffat *et al.* does not teach end use of the polymers of the invention, however, the skilled artisan would find it obvious to make molded products with the polymeric material, especially in view of Turner *et al.*, in which polyolefin thermoplastic resins have been formed into molded products.

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11. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Turner *et al.* or Moffat *et al.* in view of DE 40 30 399 to Schweier *et al.*

Neither Turner *et al.* nor Moffat *et al.* provides a teaching on how to prepare functionalized polymers. The prior art of Schweier *et al.* teaches the preparation of halogen, borane, carbonate, silane, and hydroxy-terminated terminated polymers and oligomers of propylene which have been prepared from metallocene catalysts. The skilled artisan would find it obvious to use the method described in Schweier *et al.* to prepare functionalized polymers of Turner *et al.* or Moffat *et al.*, and one having ordinary skill in the art would have expected such a modification to work.

12. Claims 1, 6, 27, 29-33, and 45-56 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 874,005 to Fujita *et al.*

The prior art of Fujita *et al.* claims compounds that are essentially the same as those described in the present claims, particularly compound (III) of present claim 32 (see claims 1, 3, 5, 7, and 19 of Fujita *et al.*). For instance, the compound shown on page 73, having the *N*-2-chlorophenyl substituent and a *t*-butyl substituent on the phenolate moiety, satisfies the structural requirements set forth in present claims 29-33. The compounds shown in rows 1-3 on page 23 (excepting pentafluorophenyl and CF<sub>3</sub>-substituted derivatives) and the hydroxy substituted derivative in 5 on page 24 also satisfy the structural features recited in present claims.

The reference is silent with respect to any parameter determined by DFT calculations for any of the compounds described therein. However, since the structures of the prior art and those claimed are essentially the same, a reasonable basis exists to expect that DFT calculations of the

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prior art compounds yield similar results. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference.

As further commentary, whereas calculations of this sort represent energy-minimized (*i.e.*, optimal), static geometries, they are merely man-made constructs, or best representations, of any real situation. Since all structures, in reality, are dynamic, a reasonable basis exists to believe that there exists some conformation in which the energetic parameters of the claims are met. Additionally, since the conformation of a structure can be manipulated using DFT programs, one is very likely to find at least one conformation that exhibits the claimed electrostatic energy. Again, the burden is shifted to the Applicants to provide evidence to the contrary, and to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.

Fujita *et al.* teaches the polymerization of olefins using compounds of the invention. Therefore, it would have been obvious to one having ordinary skill in the art to use the compounds of the prior art in a similar fashion in order to arrive at a polymer as claimed in claim 1. Although the reference is silent with respect to the properties of the polymer, a reasonable basis exists to believe that the polymer possesses the requisite properties, especially in view of the fact that they are prepared by essentially the same transition metal catalysts. Furthermore, it is noted that the degree of polymerization may be manipulated by external variables such as reaction time, and this fact is well appreciated by those having skill in the art. Since the PTO does not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.



13. Claims 1, 6, 27, 29-33, and 45-56 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 1,008,595 to Matsui *et al.*

The prior art of Matsui *et al.* claims compounds that are essentially the same as those described in the present claims, particularly compound (II-b) of present claim 29 (see claims of Matsui *et al.*). For the four compounds shown in row 5 on page 15, and the methoxy-, nitro-, and dichloro-substituted *N*-phenyl derivatives on page 16 satisfy the structural features recited in present claims 29-33.

The reference is silent with respect to any parameter determined by DFT calculations for any of the compounds described therein. However, since the structures of the prior art and those claimed are essentially the same, a reasonable basis exists to expect that DFT calculations of the prior art compounds yield similar results. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. Furthermore, whereas calculations of this sort represent energy-minimized (*i.e.*, optimal), static geometries, they are merely man-made constructs, or best representations, of any real situation. Since all structures, in reality, are dynamic, a reasonable basis exists to believe that there exists some conformation in which the energetic parameters of the claims are met. Additionally, since the conformation of a structure can be manipulated using DFT programs, one is very likely to find at least one conformation that exhibits the claimed electrostatic energy. Again, the burden is shifted to the Applicants to provide evidence to the contrary, and to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.

Matsui *et al.* teaches the polymerization of olefins using compounds of the invention. Therefore, it would have been obvious to one having ordinary skill in the art to use the compounds of the prior art in a similar fashion in order to arrive at a polymer as claimed in the parent claim. Although the reference is silent with respect to the properties of the polymer, a reasonable basis exists to believe that the polymer possesses the requisite properties, especially in view of the fact that they are prepared by essentially the same transition metal catalysts. Furthermore, it is noted that the degree of polymerization may be manipulated by external variables such as reaction time, and this fact is well appreciated by those having skill in the art. Since the PTO does not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.

14. Claims 1, 6, 27, 29-33, and 45-56 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2000-119316 to Tsuru *et al.*

The prior art of Tsuru *et al.* claims compounds that are essentially the same as those described in the present claims, particularly compound (III) of present claim 32 (see claims of Matsui *et al.*). For compounds shown on pages 7 and 8 satisfy the structural limitations set forth in present claims 28 and 29. In particular, the 2,6-difluoro- (p. 7, row 1) the 2,6-bis(trifluoromethyl) (p. 7, row 5), 4-perfluoroethyl and 3,5-bis(perfluoroethyl), and the 2-fluoro-6-trifluoromethyl (p. 8, row 2) *N*-phenyl derivatives satisfy the structural features recited in present claims 29-33.

The reference is silent with respect to any parameter determined by DFT calculations for any of the compounds described therein. Since the structures of the prior art and those claimed are essentially the same, a reasonable basis exists to expect that DFT calculations of the prior art compounds yield similar results. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. As further commentary, whereas calculations of this sort represent energy-minimized (*i.e.*, optimal), static geometries, they are merely man-made constructs, or best representations, of any real situation. Since all structures, in reality, are dynamic, a reasonable basis exists to believe that there exists some conformation in which the energetic parameters of the claims are met. Additionally, since the conformation of a structure can be manipulated using DFT programs, one is very likely to find at least one conformation that exhibits the claimed electrostatic energy. Again, the burden is shifted to the Applicants to provide evidence to the contrary, and to establish an unobviousness difference.

Tsuru *et al.* teaches the polymerization of olefins using compounds of the invention. Therefore, it would have been obvious to one having ordinary skill in the art to use the compounds of the prior art in a similar fashion in order to arrive at a polymer as claimed. Although the reference is silent with respect to the properties of the polymer, a reasonable basis exists to believe that the polymer possesses the requisite properties, especially in view of the fact that they are prepared by essentially the same transition metal catalysts. Furthermore, it is noted that the degree of polymerization may be manipulated by external variables such as reaction time, and this fact is well appreciated by those having skill in the art. Since the PTO does not

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perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.

### ***Response to Arguments***

15. Rejections under 35 U.S.C. 112, first and second paragraphs, set forth in paragraphs 9, 10, and 12-17 of the previous office action (Paper No. 8) have been withdrawn in view of Applicants amendments.

16. Rejections under 35 U.S.C. 102(b) and 35 U.S.C. 102(e), set forth in paragraphs 21-24 of the previous office action have been overcome by amendment.

17. Rejections under 35 U.S.C. 102(b) / 35 U.S.C. 103(a), set forth in paragraphs 25-27 (Brown *et al.*, Doi *et al.*, and Schiffino) of the previous office action have been overcome by amendment.

18. Applicant's arguments with respect to remaining rejections (Fujita *et al.*, Matsui *et al.*, and Tsuru *et al.*) have been considered but are moot in view of the new ground(s) of rejection.

### ***Information Disclosure Statement***

19. Abstracts of the documents listed in the information disclosure of March 25, 2003 were received, and they have been entered into the record.

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*Conclusion*

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

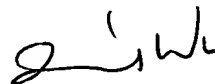
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (703)306-0094. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (703)308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703)746-7064. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

ral

May 12, 2003



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